

REMARKS

Applicant thanks the Examiner for the thorough consideration given the present application. Claims 1-4, 9-13, 15, 16 and 19-26 are currently being prosecuted. The Examiner is respectfully requested to reconsider his rejections in view of the amendments and remarks as set forth below.

Finality of Rejection

The Examiner has denominated the present rejection a final rejection. Applicants strongly disagree with the Examiner's indication of the finality of the rejection. The Examiner has withdrawn the previous rejection that lead to an appeal. The Examiner has not only instituted new rejections, but has based them on newly cited art.. Applicants submit that the denomination of this rejection as being final is premature and erroneous. Applicants request that the indication of finality be removed.

Entry of Amendment

Applicants submit that the entry of the present amendment is appropriate. Since the indication of a final rejection is inappropriate because this rejection should have been a first non-final action, Applicants submit the entry of the present amendment is proper.

Claims at Issue

The Examiner is reminded that an amendment was submitted on June 14, 2006 in which claims 5-8, 17 and 18 were cancelled and claims 21-26 were added. The Examiner indicated that claims 1-20 were rejected. Thus, the Examiner has rejected claims which have already been canceled and has not included claims 21-26 which have been added. For purposes of responding to the outstanding Office Action, Applicants will assume the Examiner meant to reject claims 21 and 23-26 as being anticipated by Feldman. This assumption is based on the fact that claim 21 is a combination of claims 1 and 8 which were included this rejection. Claims 23-26 correspond to claims 3, 4, 9 and 10 which were also included in this rejection. Since claim 22 corresponds to

claim 2, it is assumed that the Examiner would have included this in the rejection with claims 2 and 5 as being obvious over Feldman in view of Okano. The present response is based on this assumption.

Rejection Under 35 U.S.C. § 102

Claims 1, 3-5, 8-14, 16, 19 and 20 stand rejected under 35 U.S.C. § 102 as being anticipated by Feldman (US Patent 6,097,857). This rejection is respectfully traversed.

The Examiner states that Feldman teaches a multi-chip integrated module having a transparent substrate, a circuit layer formed on one surface of the transparent substrate, including a circuit for electrical interconnection and plurality of electrical pads, at least two chips mounted on the transparent substrate by way of flip chip bonding and a circuit substrate attached to the transparent substrate.

By way of the present amendment, Applicants have added a limitation to each of independent claims 1, 13 and 14 to recite the gap located between the chips and the circuit substrate. This is clearly seen in FIG 1A and 2-8A. In regard to FIG 1A, it is clearly seen that there is a gap between the chips 12 and the circuit substrate 13. This gap allows heat to dissipate easily through the back side of each chip to enhance heat dissipation. Also, this allows a greater tolerance between the chips and the circuit substrate which makes it easier to assemble the transparent substrate and the circuit substrate easily. It also helps to avoid a collision between the circuit substrate and the chips during assembly. The circuit substrate also does not receive heat from the chip.

In the reference, there is no gap between chips 13', 15' and the mounting substrate 45. In fact, the mounting substrate 45 covers and contacts the chips. Heat generated from the chips is first dissipated into the mounting structure which can affect the circuit performance and lifetime of the substrate. This arrangement lacks good heat dissipation and also requires a higher precision for assembling the chips with the mounting substrate. Finally, Applicants submit that

the feature found in claims 1, 13 and 21 is not seen in the reference and accordingly these claims are considered to be allowable thereover.

Further, in regard to amended claim 21, the circuit substrate is defined as having a hollow portion for allocating the chips. This also allows the chip to have superior heat dissipation to make it easier to attach a heat dissipation element. The Feldman reference does not include a hollow in the mounting substrate accordingly, claim 21 is further allowable thereover.

Regarding amended claim 13, Applicants have added the limitations of claim 14 thereto. This claim describes the height of the first bumps as being larger than the height of the chips. This allows the circuit substrate connected to the first chips to avoid touching the transparent substrate. This is also not seen in the reference and accordingly, claim 13 is additionally allowable. For these reasons, Applicants submit that independent claims 1, 13 and 21 are allowable over this rejection.

Claims 2-4, 9-12, 14-16, 19, 20 and 22-26 depend from these allowable independent claims and as such are also considered to be allowable. In addition, each of these claims have other features which make them additionally allowable.

Rejection Under 35 U.S.C. § 103

Claims 2 and 15 stand rejected under 35 USC § 103 as being obvious over Feldman in view of Okano (U.S. Patent 5,679,928). It is also assumed that the Examiner meant to include claim 22 in this grouping. This rejection is respectfully traversed.

The Examiner relies on Okano to teach the glass substrate in a multi chip integrated circuit. Applicants submit that even if Okano teaches this feature, these claims remain allowable based on their dependency from allowable independent claims.

Claims 6, 7, 17 and 18 stand rejected under 35 U.S.C. § 103 as being obvious over Feldman in view of Lin (U.S. Patent 5,018,005). This rejection is respectfully traversed.

Applicants which to point out that these claims were among those that were canceled in the last amendment. Accordingly, this rejection is rendered moot.

Conclusion

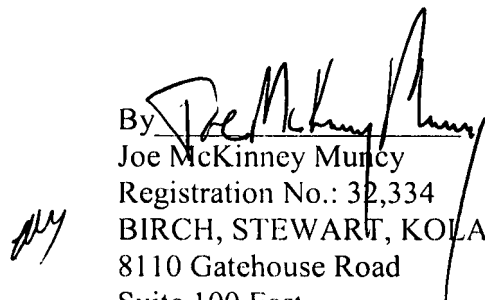
In view of the above remarks, it is believed that the claims clearly distinguish over the patents relied on by the Examiner, either alone or in combination. In view of this, reconsideration of rejections and allowance of the claims is respectfully requested.

If the Examiner has any questions or comments, please contact Robert F. Gnuse, Reg. No. 27,295 at the offices of Birch, Stewart, Kolasch & Birch, LLP.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

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Respectfully submitted,


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